

REMARKS

Reconsideration of this application and withdrawal of the rejections set forth in the non-final Office Action mailed May 13, 2009, is requested in view of this amendment and the following remarks. Claims 1-9 were pending and at issue prior to this amendment. Claims 1, 4 and 7 have been amended herein. The claims as amended are fully supported by the specification as filed. For example, the addition of the Markush group of the internal electron donor selected from the group of ethyl benzoate and di-isobutyl phthalate is explicitly described in the Example of paragraphs [0028] – [0029].

The amendment to paragraph [0023] of the specification replacing “organomagnesium” with “organoaluminum” corrects an obvious typographical error. This correction of the typographical error is supported, for example, in the Example of paragraphs [0028] – [0029], paragraph [0021], paragraph [0026], paragraphs [0007]-[0009], and paragraph [0011], in addition to original claims 1 and 4. Paragraph [0011] explicitly states that the “cocatalyst is an organoaluminum compound such as trialkyl aluminum or dialkyl aluminum halide. The alkyl group may be methyl, ethyl, butyl, isobutyl, hexyl and octyl and the halide may be chloride or bromide. The preferred cocatalyst is triethyl aluminum.”

Rejection of Claims 1-9 under 35 U.S.C. Section 112, 2nd Paragraph

Claims 1-9 were rejected as being indefinite for certain grammatical errors, and the misspelling of the word “organoaluminum”. Claims 1, 4 and 7 have been amended to clarify the claims as suggested by the Examiner. Therefore, this rejection should now be withdrawn.

Rejection of Claims 1-9 under 35 U.S.C. Section 103 as being Obvious

In the Office Action, the Examiner rejected claims 1-9 under 35 U.S.C. Section 103(a) as being obvious over Murata et al. (U.S. Patent No. 4,737,481). Applicants respectfully submit that this rejection should be withdrawn because the Examiner has failed to point to any teaching or suggestion in the cited prior art of Applicants' invention as recited by the claims as amended herein. More specifically, the cited prior art does not teach, suggest, or otherwise render obvious Applicants' claimed catalytic system of polymerization of lower alpha alkene, comprising at least one of an organomagnesium or magnesium chloride derived procatalyst comprising magnesium chloride supported titanium chloride and an internal electron donor selected from the group of ethyl benzoate or di-isobutyl phthalate; and an organoaluminum based cocatalyst; and a selectivity control agent, wherein the selectivity control agent consists of naturally derived optically pure isomers of tartrates such as esters of (2-R, 3-R)-dihydroxy-butane-1, 4-dicarboxylic acid or (2-S, 3-S)-dihydroxybutan-1,4-dicarboxylic acid.

To establish a *prima facie* case of obviousness, the Examiner must establish three basic criteria: first, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; second, there must be a reasonable expectation of success; and finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Moreover, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). It is improper to pick and choose among features and elements found in the prior art references in a hindsight

reconstruction of Applicants' claimed invention. See e.g., *In re Jones*, 958 F.2d 347, 350-51 (Fed. Cir. 1992); *In re Fritch*, 919 F.2d 720 (Fed Cir. 1990) ("It is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious"). Furthermore, it is improper to combine the teachings of references where the references teach away from the asserted combination. MPEP § 2145. Applicant submits that the Examiner's obviousness rejection cannot be sustained consistent with these well-established requirements for obviousness.

One particularly innovative aspect of Applicants' claimed invention is in the combination of tartrate esters acting as selectivity control agents (external electron donors) with the internal electron donor selected from the group of ethyl benzoate (a monoester internal electron donor) or di-isobutyl phthalate (a diester internal electron donor). The benefits of the catalytic system are clearly stated on page 3, column 1, paragraph [0029], of the present application. For example, the catalytic system of the invention has excellent activity and selectivity for polymerization of polypropylene. Also, the selectivity control agent comprises naturally derived optically pure isomers of tartrates which are non-toxic and without side-effect, in addition to being economical.

In stark contrast to Applicants' invention, Murata et al. teaches a process for preparing a catalyst ingredient for use in olefin polymerisation to suppress the formation of macro-particles during olefin polymerisation (see col. 1, lines 64-66) by controlling the grain size of the catalyst ingredient. The process comprises contacting (A) a magnesium hydrocarbyloxiide and (B) a silicon compound having hydrogen-silicon bonds in the presence of a hydrocarbon medium, contacting the thus obtained solid product (C) a halogenated titanium compound in the presence or absence of a hydrocarbon medium and then adding to contact (D) an electron donating

compound. The description disclosing the process for preparing the catalyst ingredient (col. 5, line 39 to col. 6, line 45 and the examples) clearly shows that the electron donating compounds (D) are internal electron donors. It is also clear from Example 1 of Murata et al., and the description at col. 9, lines 36-42, that phenyl triethoxy silane is optionally being used as an external donor for the propylene polymerization. In any case, the use of phenyl triethoxy silane as an external electron donor is well documented in literature (see "Polypropylene and other Polyolefins: Polymerization and Characterization, by Ser van der Ven, Elsevier, New York, 1990, page 31).

It is generally known in the art that an arbitrary combination of internal and external electron donors will not provide the desired degree of efficiency of the catalytic system to control productivity and isotacticity. Thus, Applicants' use of the selective combination of an internal donor such as ethyl benzoate or di-isobutyl phthalate and naturally derived optically pure isomers of tartrates such as esters of (2-R, 3-R) - dihydroxy-butane-1,4-dicarboxylic acid or (2-S, 3-S)- dihydroxybutane-1,4-dicarboxylic acid as selectivity control agent and discovering its activity by experimental data is novel and non-obvious over Murata et al. Such a selection is not obvious over the Murata et al. or any of the other cited prior art.

There is simply no teaching or suggestion in Murata et al. to modify its disclosed system to produce the catalytic system of Applicants' claimed invention. Furthermore, the naturally derived optically pure isomers of tartrates such as esters of (2-R, 3-R) - dihydroxy-butane-1,4-dicarboxylic acid or (2-S, 3-S)- dihydroxybutane-1,4-dicarboxylic acid are not taught or suggested by Murata et al. The only tartrates disclosed in Murata et al. are diethyl tartrate, dibutyl tartrate and diisobutyl tartrate (see col. 4, lines 37-38). The teaching in Murata et al.

does not teach, suggest or motivate one of ordinary skill in the art to identify the naturally derived optically pure isomers of tartrates, such as esters of (2-R, 3-R) - dihydroxy-butane-1,4-dicarboxylic acid or (2-S, 3-S)- dihydroxybutane-1,4-dicarboxylic acid, and to use them in combination with an internal electron donor such as ethyl benzoate or di-isobutyl phthalate and an organomagnesium or magnesium chloride derived procatalyst comprising magnesium chloride supported titanium chloride to obtain the catalytic system of the present invention.

Accordingly, claims 1-9 are not obvious over Murata et al. and this rejection should be withdrawn.

Conclusion

Any claim amendments which are not specifically discussed in the above remarks are not made for reasons of patentability, do not affect the scope of the claims, and it is respectfully submitted that the claims satisfy the statutory requirements for patentability without the entry of such amendments. These amendments have only been made to increase claim readability, to improve grammar, or to reduce the time and effort required of those in the art to clearly understand the scope of the claim language.

In view of the foregoing remarks, Applicant respectfully submits that all of the Examiner's rejections have been overcome. Accordingly, allowance is earnestly solicited. If the Examiner feels that a telephone interview could expedite resolution of any remaining issues, the Examiner is encouraged to contact Applicant's undersigned representative at the phone number listed below.

Respectfully submitted,

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